

RESPONSE UNDER 37 C.F.R. § 1.116

EXPEDITED PROCEDURE – Art Unit 2814

Attorney Docket No. 108298742US

Disclosure No. 03-0599.00/US

Amendments to the Claims:

Please cancel claims 16, 21, 23 and 24; and please amend claims 17-20, 22, and 25-30 as set forth below. Following is a complete listing of the claims pending in the application, as amended:

1. (Previously Presented) A method of manufacturing a microelectronic device having a die with an integrated circuit, the method comprising:
 - forming a bond-pad on the die, wherein the bond-pad is electrically coupled to the integrated circuit;
 - forming a redistribution layer on the die, the redistribution layer including a conductive line having a first end portion attached to the bond-pad and a second end portion spaced apart from the bond-pad;
 - forming a passage through the die, the bond-pad, and the first end portion of the conductive line; and
 - depositing an electrically conductive material into at least a portion of the passage, wherein the electrically conductive material extends through the bond pad and contacts the bond-pad.
2. (Original) The method of claim 1, further comprising applying a passivation layer to at least a portion of the passage before depositing an electrically conductive material into at least a portion of the passage.
3. (Original) The method of claim 1, further comprising:
 - cleaning the passage after forming the passage through the die, the bond-pad, and the first end portion of the redistribution layer; and
 - applying a passivation layer to at least a portion of the passage before depositing an electrically conductive material into at least a portion of the passage.

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4. (Original) The method of claim 1, further comprising applying a TiCL₄ TiN layer to at least a portion of the passage before depositing an electrically conductive material into at least a portion of the passage.

5. (Original) The method of claim 1, further comprising applying a wetting agent to at least a portion of the passage before depositing an electrically conductive material into at least a portion of the passage.

6. (Original) The method of claim 1, further comprising applying a Ni layer to at least a portion of the passage before depositing an electrically conductive material into at least a portion of the passage.

7. (Original) The method of claim 1, further comprising:
applying a TiCL₄ TiN layer to at least a portion of the passage; and
applying a Ni layer over at least a portion of the TiCL₄ TiN layer before depositing an electrically conductive material into at least a portion of the passage.

8. (Original) The method of claim 1, further comprising:
applying a passivation layer to at least a portion of the passage;
applying a TiCL₄ TiN layer over at least a portion of the passivation layer; and
applying a Ni layer over at least a portion of the TiCL₄ TiN layer before depositing an electrically conductive material into at least a portion of the passage.

9. (Original) The method of claim 1 wherein forming the passage includes laser-cutting a through-hole completely through the die.

10. (Original) The method of claim 1 wherein the bond-pad includes a hole filled with a passivation material, and wherein forming the passage includes laser-cutting a through-hole completely through the die and the passivation material.

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11. (Original) The method of claim 1, further comprising:
forming a hole through the first end portion of the conductive line and the bond-pad; and
filling the hole with a passivation material, wherein forming the passage through the die, the bond-pad, and the first end portion of the conductive line includes cutting a through-hole completely through the die and the passivation material.

12. (Original) The method of claim 1, further comprising:
etching a hole through the first end portion of the conductive line and the bond-pad; and
filling the hole with a passivation material, wherein forming the passage through the die, the bond-pad, and the first end portion of the conductive line includes laser-cutting a through-hole completely through the die and the passivation material.

13. (Previously Presented) A method of manufacturing a microelectronic device having a die with an integrated circuit, the method comprising:
forming a bond-pad on the die, wherein the bond-pad is electrically coupled to the integrated circuit;
forming a redistribution layer on the die, the redistribution layer including a conductive line having a first end portion attached to the bond-pad and a second end portion spaced apart from the bond-pad;
forming a passage through the die, the bond-pad, and the first end portion of the conductive line;
depositing an electrically conductive material into at least a portion of the passage, wherein the electrically conductive material extends through the bond pad;
forming a ball-pad on the second end portion of the conductive line; and
depositing a solder ball on the ball-pad.

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14. (Original) The method of claim 1, further comprising forming a hole in the bond-pad before forming the passage through the die, the bond-pad, and the first end portion of the conductive line.

15. (Original) The method of claim 1, further comprising:
forming a hole in the bond-pad before forming the passage through the die, the bond-pad, and the first end portion of the conductive line; and
at least generally filling the first hole with a dielectric material, wherein forming the passage through the die, the bond-pad, and the first end portion of the conductive line includes forming the passage through the dielectric material.

16. (Cancelled)

17. (Currently Amended) The method of claim 16-22 wherein the die includes a first surface and a second surface opposite to the first surface, wherein forming a bond-pad on the die includes forming a bond-pad at least proximate to the second surface, and wherein forming a passage through the die and the bond-pad includes applying a laser from the first surface of the die toward the second surface of the die to laser-cut a through-hole through the die.

18. (Currently Amended) The method of claim 1622, further comprising applying a passivation layer to at least a portion of the passage before depositing an electrically conductive material into at least a portion of the passage.

19. (Currently Amended) The method of claim 1622, further comprising applying a TiCL₄ TiN layer to at least a portion of the passage before depositing an electrically conductive material into at least a portion of the passage.

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20. (Currently Amended) The method of claim 1622, further comprising:
applying a TiCL₄ TiN layer to at least a portion of the passage; and
applying a Ni layer over at least a portion of the TiCL₄ TiN layer before depositing
an electrically conductive material into at least a portion of the passage.

21. (Cancelled)

22. (Currently Amended) ~~The method of claim 16, further comprising:~~ A
method of manufacturing a microelectronic device having a die with an integrated circuit
and a bond-pad electrically coupled to the integrated circuit, the method comprising:
etching a hole through the bond-pad; and
filling the hole with a passivation material;
forming a passage completely through the die and the bond-pad, wherein
forming the passage through the die and the bond-pad includes laser-
cutting a through-hole through the die and the passivation material; and
depositing an electrically conductive material into at least a portion of the
passage, wherein the electrically conductive material contacts at least a
portion of the bond-pad.

23. (Cancelled)

24. (Cancelled)

25. (Currently Amended) The method of claim 2430, further comprising
insulating the die from the electrically conductive material in the passage.

26. (Currently Amended) The method of claim 2430, further comprising
applying an insulating layer to the die proximate to the passage to insulate the die from
the electrically conductive material in the passage.

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27. (Currently Amended) The method of claim 2430, further comprising filling the hole in the bond-pad with a material, wherein forming a passage through the die and the bond-pad includes forming a passage through the die and the material filling the hole in the bond-pad.

28. (Currently Amended) The method of claim 2430, further comprising filling the hole in the bond-pad with a passivation material, wherein forming a passage through the die and the bond-pad includes forming a passage through the die and the passivation material filling the hole in the bond-pad.

29. (Currently Amended) The method of claim 24-30 wherein forming a hole in the bond-pad includes forming a first hole having a first diameter, and wherein forming the passage includes laser-cutting a through-hole having a second diameter, the second diameter being less than the first diameter.

30. (Currently Amended) The method of claim 24, further comprising A method of forming a conductive interconnect in a microfeature workpiece having a die, the die having an integrated circuit and a bond-pad coupled to the integrated circuit, the method comprising:

forming a conductive line electrically coupled to the bond-pad;

forming a hole in the bond-pad;

forming a via completely through the die in alignment with the hole in the bond-pad, wherein the via and the hole define a passage extending completely through the die, the bond-pad, and wherein forming a passage through the die and the bond-pad includes forming a passage through a portion of the conductive line; and

depositing an electrically conductive material into at least a portion of the passage, wherein the electrically conductive material contacts at least a portion of the bond-pad.

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31-43. (Cancelled)